Amendments to the Claims

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Currently amended) An optical disc drive comprising:

a lens ~~(20)~~ for focusing and positioning a radiation beam on an optical disc ~~(10)~~, wherein the radiation beam is reflected by the optical disc~~;~~,

means ~~(12, 13)~~ for causing the optical disc ~~(10)~~ to rotate with a disc rotational frequency, and

detection means for receiving the reflected radiation beam and generating a radial error signal ~~(55)~~ indicating a position of the lens ~~(20)~~ relative to the optical disc ~~(10)~~,

lens position motor ~~(24)~~ for moving the lens ~~(20)~~,

a servo control circuit ~~(30)~~ having a tracking mode for controlling the position of the lens ~~(20)~~ in response to the radial error signal ~~(55)~~, comprising a first motor control circuit ~~(52, 58)~~ for controlling the lens position motor ~~(24)~~,

~~characterized in that~~wherein the control circuit ~~(30)~~ further comprises means ~~(54, 56)~~ for applying an alternating signal to the

lens position motor ~~(24)~~ and wherein the alternating signal has a frequency higher than the disc rotational frequency.

2. (Currently amended) ~~An~~ The optical disc drive according to claim 1, wherein the alternating signal has a frequency ~~higher than the disc rotational frequency~~of substantially 2 kHz.

3. (Currently amended) ~~An~~ The optical disc drive according to claim 1, for an optical disc ~~(10)~~ having a given track pitch, wherein the alternating signal is of an amplitude sufficient to cause the lens ~~(20)~~ to shake with an amplitude of at least ~~about~~ 0.8 to 1.0 times the track pitch.

4. (Currently amended) ~~An~~ The optical disc drive according to claim 1, further comprising

a sledge ~~(22)~~ for moving the lens position motor ~~(24)~~ and the lens ~~(20)~~ in radial direction relative to the optical disc ~~(10)~~, and

a second motor ~~(25)~~ for control of the sledge ~~(22)~~, wherein the servo control circuit ~~(30)~~ comprises a second motor control circuit ~~(52, 62)~~ for controlling the second motor ~~(25)~~.

5. (Currently amended) ~~An~~ The optical disc drive according to claim 4, wherein the detection means are adopted to generate a lens position signal ~~(53)~~ which is indicative of the position of the lens ~~(20)~~ with respect to the sledge ~~(22)~~.

6. (Currently amended) ~~An~~ The optical disc drive according to claim 5, wherein the servo control unit ~~(30)~~ has a non-tracking mode and wherein the servo control unit ~~(30)~~ further comprises a lens position controller ~~(101)~~ for outputting a lens position control signal ~~(57)~~ to control the position of the lens ~~(20)~~ in response to the lens position signal ~~(53)~~ in the non-tracking mode.

7. (Currently amended) ~~An~~ The optical disc drive according to claim 6, wherein the lens position signal ~~(53)~~ is fed to a low-pass filter ~~(65)~~ with a cut-off frequency less than the frequency of the alternating signal and higher than the disc rotational frequency and an output of the low-pass filter ~~(65)~~ is fed to the lens position controller ~~(101)~~.

8. (Currently amended) ~~An~~ The optical disc drive according to

claim 6, wherein the servo control circuit ~~(30)~~ further comprises means ~~(54)~~ for combining the lens position control signal ~~(57)~~ with the alternating signal to give a modulated signal to the lens position motor ~~(24)~~.

9. (Currently amended) ~~An~~ The optical disc drive according to claim 1, wherein the servo control circuit ~~(30)~~ comprises a radial offset control feedback loop ~~(60)~~.

10. (Currently amended) ~~An~~ The optical disc drive according to claim 9, wherein the radial offset control feedback loop ~~(60)~~ is able to operate in a first mode and in a second mode, wherein in the first mode the lens ~~(20)~~ is moved in a neutral position and a lens position offset in the lens position signal ~~(53)~~ is measured and in the second mode the lens position signal ~~(53)~~ is corrected with the measured lens position offset.

11. (Currently amended) ~~An~~ The optical disc drive according to claim 10, further comprising a micro-controller ~~(115)~~ receiving an input from a user and providing an initialization signal ~~(117)~~ in

response to the user input, wherein:

first switching means ~~(111)~~ responsive to the initialization signal ~~(117)~~ are provided for selectively causing the lens position motor ~~(24)~~ to allow the lens position to adopt a neutral position or cause the lens position motor ~~(24)~~ to be controlled by the first motor control circuit, and

the radial offset control feedback loop ~~(60)~~ comprises second switching means responsive to the initialization signal ~~(117)~~ for selectively measuring a lens position offset of the lens position signal ~~(53)~~ or correcting the lens position signal ~~(53)~~ with the measured lens position offset.

12. (Currently amended) ~~An~~ The optical disc drive according to claim 9, wherein the radial offset control feedback loop ~~(60)~~ is able to operate in a first mode and in a second mode, wherein in the first mode the lens ~~(20)~~ is moved in a neutral position and wherein a radial offset in the radial error signal ~~(55)~~ is measured and wherein in the second mode the measured radial offset is subtracted from the radial error signal ~~(55)~~.

13. (Currently amended) ~~An~~ The optical disc drive according to

claim 12, further comprising a micro-controller ~~(115)~~ receiving an input from a user and providing an initialization signal ~~(117)~~ in response to the user input, wherein:

first switching means ~~(111)~~ responsive to the initialization signal ~~(117)~~ are provided for selectively causing the lens position motor ~~(24)~~ to allow the lens position to adopt a neutral position or cause the lens position motor ~~(24)~~ to be controlled by the first motor control circuit, and

the radial offset control feedback loop ~~(60)~~ comprises third switching means ~~(132)~~ responsive to the initialization signal ~~(117)~~ for selectively measuring a radial offset of the radial error signal ~~(55)~~ or correcting the radial error signal ~~(55)~~ with the measured radial offset.

14. (Currently amended) ~~An~~ The optical disc drive according to claim 9, wherein the radial offset control feedback loop ~~(60)~~ has a time constant that is low with respect to the disc rotational frequency.

15. (Currently amended) Method for controlling the position of a lens ~~(20)~~ in an optical disc drive, the method comprising ~~the steps~~

acts of:

causing an optical disc ~~(10)~~ to rotate with a disc rotational frequency;

controlling the position of the ~~(20)~~ lens with a lens position motor ~~(24)~~;

~~characterized in that~~wherein the method further comprises a step of applying an alternating signal to the lens position motor ~~(24)~~ and wherein the alternating signal has a frequency higher than the disc rotational frequency.

16. (New) The method according to claim 15, wherein the alternating signal has a frequency of substantially 2 kHz.

17. (New) The method according to claim 15, for an optical disc having a given track pitch, wherein the alternating signal is of an amplitude sufficient to cause the lens to shake with an amplitude of at least 0.8 to 1.0 times the track pitch.